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Use of Local Currencies : Effects on Local Economy and Policy Implications Focusing on Local Employment

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Introduction

Recently, the introduction of “Jiyeok-sarang Gift Certificates” (hereafter, local currencies) has been greatly expanded as a way to stimulate the local economy and support small businesses. This study attempts to examine the effects of local currencies on the local economy, focusing on the retail and restaurant sectors where small businesses tend to dominate.

I. Major Analysis Results

Local currencies with limited geographical area and sector of use have the effect of increasing users’ disposable income by discounting a certain percentage of the face value or offering cash back. When local residents pay for goods and services using local currencies, and use the additional disposable income generated from that in the local economy, the sales of the local economy will increase and ultimately local employment will grow. In other words, the effect of increased sales of local currencies on the local economy can be summarized as follows: increased sales of local currencies → local residents use them as a payment method → additional disposable income generated → increased consumption of local residents → increased sales in the local economy → growth in local employment.

Considering the above flow of the employment effect, this study conducted empirical analysis in three stages to confirm whether increased sales of local currencies ultimately increased local employment.

In the first stage, the characteristics of the local currency data collected for empirical analysis were examined. And based on this, the points to be considered when setting up an analysis model and interpreting the research results were identified.

The second stage involved empirical analysis in the aspect of sellers on the effect of increased sales of local currencies on the sales and employment of retail and restaurant businesses, which were aggregated by region. However, the author was not able to obtain any clear analysis results confirming that local currencies affected the sales and employment of the retail and restaurant sectors. Such results may be attributed to measurement errors of the local currencies data, or may be related to the payment method selection and consumption behavior of local residents.

To further clarify this, the effects of increased sales of local currencies on offline and online consumption of local residents were analyzed in the aspect of consumers, using the amount spent on credit cards. A detailed explanation of each step and the main analysis results are as follows:

1. Characteristics of the Local Currency Data: Measurement Errors and Ashenfelter's Dip

This section identified the characteristics of the data by examining which regional characteristics are the main determinants of the sale of local currencies, and how many local currencies have increased since 2018, when the government subsidy started.

Because local currencies have various issuing entities and types, it is difficult to accurately grasp the sales status. The Ministry of the Interior and Safety, the ministry in charge of local currencies, has been compiling sales of local currencies by local government since 2019, but not by type of local currencies. Due to such limitations of the available data, this study used the amount of local currencies issued in 2010-2018, investigated by Kang Chang-hoe et al. (2020), and linked it with the sales of local currencies in 2019-2020, released by the Ministry of the Interior and Safety, regarding the amount issued as the sales amount, to construct the analysis data. In this process, the sales of local currencies of metropolitan governments were allocated to local governments in proportion to the GRDP ratio. The amount of sales of local currencies in 228 regions were standardized as a percentage of GRDP and used for empirical analysis. Considering the rapid growth in online shopping and the structural changes in the composition of retail sales since 2015, the analysis period was set to 2015-2020.

Using the constructed regional panel data, the author estimated which regional characteristics are the main determinants of the sale of local currencies with the panel fixed effect model and the first-order difference model. Regardless of the analysis model, it was found that sales of local currencies compared to GRDP tended to rise for smaller local populations and higher economic participation rate. In addition, it was confirmed that the sales of local currencies increased by 0.036%p compared to GRDP on average after 2018, when the government subsidy started.

By comprehensively considering the difficulties in constructing the local currency data and the empirical analysis results of this study, the author came up with the following points to be noted in the analysis and interpretation of the effects of local currencies on the local economy variables such as sales and employment of the local economy.

First, it is difficult to construct accurate local currency data because measurement errors can be serious in empirical analysis. In such cases, even if local currencies do have significant positive or negative effects on the local economy, the effects may appear absent in the estimation results (attenuation bias). Therefore, if it is suspected that there are measurement errors in the investigated amount of local currencies issued or sold, and if the degree of measurement errors cannot be accurately known, caution is needed to assert that there is no real effect even if the analysis results confirm that the effect of local currencies on the local economy is not statistically significant.

Second, it is necessary to consider the relationship between the trend of local economic variables such as sales and the trend of sales of local currencies. In regions where the population is decreasing, consumption demand is reduced and the economic downturn may continue. In turn, the local government may introduce a local currency or attempt to increase the amount of issuance to boost the local economy. In this case, if the trend of decreasing local population is not properly considered, the effects of a local currency on the local economy, such as retail sales, may be estimated smaller than the actual size, or even negative analysis results may appear. This phenomenon is similar to 'Ashenfelter's dip', which is frequently mentioned when analyzing the effects of education and training programs. Therefore, when analyzing the effects of local currencies on the local economy, a more robust estimation method may be needed, such as controlling the heterogeneous trends of local economic variables in the region where a local currency is introduced, or using appropriate instrumental variables.

Third, it may be effective to analyze the impact of local currencies on the local economy by utilizing the expansion of government subsidies as an exogenous variation. Since 2018, the central government has greatly expanded issuance support for local currencies, meaning that many local governments who had wished to issue local currencies but not been able to do so due to lack of financial resources may have been able to introduce local currencies owing to the support of the central government. Given this point, the exogenous variation of expanded central government support can be used in the instrumental variable method.

2. Analysis in the Aspect of Sellers: Impact on Sales and Employment in Retail and Restaurant Businesses

This section estimated the effects of local currencies using two analysis models in consideration of the characteristics of the local currency variables. First, considering that the common trend assumption is not likely to hold for sales and employment by region, a panel fixed effect model that controls for heterogeneous trends by region was estimated. The analysis area was set to 228 regions, and the analysis period was set from 2015, when online shopping was expanded, to 2019, when sales and employment data were available. Next, considering that unobserved characteristics that can affect local sales or employment are highly correlated with local currency variables, the estimation of instrumental variables, which regarded the expansion of government subsidies after 2018 as an exogenous variable, was implemented.

In this section, the effects of increased sales of local currencies on the local sales were analyzed for retail, restaurants, and pubs. This study used the Statistical Business Register (SBR) data released by the Statistics Data Center of Statistics Korea as the sales data used for empirical analysis. No significant effects of local currencies were found in both the panel fixed effect model and the instrumental variable analysis.

It also analyzed the effects of increased sales of local currencies on local employment, focusing on retail businesses, restaurants and pubs. The number of workers by region, to be used as the dependent variable for empirical analysis, was constructed using micro data of the nationwide business survey provided by Statistics Korea's Microdata Integrated Service (MDIS). When estimated using the panel fixed effect model, no significant effects were found regardless of industry. Also, when estimated by applying the instrumental variable method, no statistically significant effects of local currencies on retail sector employment were found. On the other hand, a significant positive (+) effect was found for all workers (in the case of small businesses) and non-wage workers (in the case of all and small businesses) in the restaurant and pub sectors. However, it was statistically significant only at the 10% level, so there is a limit to interpreting this result as a clear employment effect.

3. Analysis in the Aspect of Consumers: An Inference about Local Residents' Choice of Payment Method and Spending Behavior

In this section, the effects of increased sales of local currencies on the use of credit cards, one of the payment methods chosen by local residents, were analyzed using a panel fixed effect model. To perform empirical analysis, the author obtained the data on the amount spent on credit cards in the retail sector by region and industry provided by S Card, divided it by region and by platform (offline and online), and set it as a dependent variable. When the analysis period was set to 2016-2019, excluding 2020 when COVID-19 occurred, it was estimated that an increase of KRW 1 million in sales of local currencies led to a reduction in the total amount spent on credit cards by local residents by KRW 350,000 on average. When the amount spent on credit cards offline was set as a dependent variable, the reduction was about KRW 310,000. In the case of the amount spent on credit cards online, however, the effects showed a negative (-) direction but were not statistically significant.

The implications on the use of local currencies and spending behavior of local residents derived from the above analysis results are as follows:

First, the use of local currencies in replacement of credit cards as a payment method is mainly observed in offline spending, and the substitution effect is not significant in online spending. This difference in the substitution effect is presumed to be due to the difference in the types of products mainly purchased offline and online and the immediacy of consumption.

Second, it is necessary to note that making purchases using local currencies takes place not only in the retail and restaurant sectors but also in other industries. If local currencies were also used in industries other than the retail and restaurant sectors, it is possible that they led to a reduction in the amount spent on credit cards offline in the retail sector without causing a significant change in the sales of the local retail and restaurant businesses. In light of this, it would be necessary to explore the spending behavior of local residents who use local currencies, especially in terms of the distribution of industries where they are used, before analyzing the economic effects of local currencies.

In consideration of all the above-mentioned limitations of the local currency data and the empirical analysis results, the following policy implications are derived.

II. Policy Implications

1. Establishing a database that can accurately reflect the usage of local currencies is needed first to lay a foundation for policy

effect analysis

Since local currencies have various issuing entities and types, it is difficult to construct a database on all usage status of all the local governments in Korea. Although the Ministry of the Interior and Safety has been compiling the sales of local currencies by local government relatively systematically since 2019, it does not provide separate data on sales by type. In the absence of a systematic database on local currencies, previous studies relied on investigative or questionnaire surveys targeting local governments or merchants to construct data on local currencies and used them for empirical analysis. However, if we rely only on survey data, we have no choice but to exclude local governments or merchants who did not respond, and the older the survey, the more likely it is that the response will be inaccurate. The greater the degree of measurement errors in the data, the greater the possibility that the effects of local currencies on the local economy will appear smaller than they actually are or absent.

In light of this, an accurate analysis of the economic effects of local currencies first requires building a systematic database on the usage status. A local currency database needs to compile data not only on the issuance and sales by local government, but also on the usage by type of local currencies. Moreover, it would be necessary to be able to see the usage of local currencies in all industries, not just retail and restaurant businesses. To this end, one could utilize the information on the industry to which a merchant belongs identified in card-type or mobile-type local currencies. In addition, by combining data on credit card usage and big data, it would be possible to explore the amount of local currencies spent by users' income quintile, distribution of industries where local currencies are used, substitution effect of payment method, as well as income effect, etc. In addition, by linking the address of the users with the address of the merchants, it would also be possible to compare spending behavior within and outside the jurisdiction.

2. For local governments facing the risk of "extinction," a small-scale pilot project aimed at attracting the inflow of relational population and expanding local employment can be initiated by linking the program of "Gohyang-sarang Donation" and the use of local currencies

Considering that local regions facing the risk of "extinction" are experiencing a continuous decline in the stable (residing) population and demand for local consumption, it would be helpful to create situations that will contribute to revitalizing the local economy and inducing local job creation based on the stable and "relational population" through a policy package linking the use of local currencies and the "Gohyang-sarang Donation" program. Relational population can be defined as "a group of individuals that do not live in a given area but have relationships with the area through various activities such as leisure, work, and social contribution." (So-young Lee, 2021). Although it is very difficult to expand the stable population of a local region facing the risk of "extinction," it can be relatively easy to increase the inflow of relational population visiting the region for various purposes or staying for a short period of time. An increase in the inflow of relational population is expected to boost the effective consumption demand in the region, which will have a positive impact on the revitalization of the local economy. Thus, the policy package linking the use of local currencies and the “Gohyang-sarang Donation” program can be considered as a way to expand this inflow of relational population.

3. Local-level policies are needed to respond to the local economic downturns caused by the “extinction” of local towns, imbalances between capital and non-capital regions, and COVID-19 outbreak; and discussions on the policy direction for local currencies that comprehensively considers fiscal spending efficiency at the national level are required

Non-capital regions are continuing to see population decline, particularly in towns facing the risk of “extinction,” while the intensifying disparity between capital and non-capital regions is causing a contraction in economic activity and a reduction in jobs. Moreover, due to the expansion of the online economy facilitated by the recent COVID-19 outbreak, the risk of local economic contraction in non-capital areas where the online economy is relatively weak has significantly increased. The need for policies to stimulate the local economy, focusing on non-capital regions, is growing ever greater in the midst of demographic and socioeconomic changes that cause the local economy to stagnate. Against this backdrop, local currencies are considered as an important policy alternative at the level of the local government as a way to strengthen the local economy.

However, even if local currencies are an effective policy instrument for economic revitalization at the local level, they may incur high net cost at the national level (especially in the light of fiscal sustainability and efficiency). Considering the fact that the optimal choice of each local government and of the central government for maximizing social welfare may not always coincide (Kyung-Ho Song and Hwan-Woong Lee, 2020a), it would be desirable to gather diverse opinions on local currencies, and comprehensively discuss the policy direction based on scientific evidence. In order for such discussion to be constructive and progressive, the fact-checking process must take precedence. To this end, it is necessary to construct a database on the usage status of local currencies, and to disclose it to the public to enable evidence-based scientific analysis.

III. Academic Considerations for Future Studies

This study has limitations in not being able to set more diverse models and compare analysis results due to limited research period. The following is a brief summary of the matters that the author did not address in this study, but wishes to be reviewed academically in subsequent studies.

First, when applying the heterogeneous trend by region in the panel fixed effect model, it may be possible to consider using extrapolation to extend the pre-treatment trend to after treatment. Second, if a local currency database is constructed so that the regional panel data after 2020 becomes available, it would be helpful to control the endogeneity of local currency variables using “Bartik instruments.” Third, in addition to the analysis of the effects of local currencies on the local economy, attention should also be paid to the analysis model that could estimate the ripple effect (i.e., spatial spillovers) to the economy of adjacent local governments.